Patent claims

A/3A 1. A method for determining the offset error of a measurement that is subject to such an offset error of the coil current of an electromagnetic actuator (1), in which method

the measurement that is subject to the offset error of the coil current through a coil (14, 16) is performed when the actuator (1) is in a final position in which the coil (14, 16) is not supplied with current during the operation of the actuator (1), and

the value obtained is taken as the offset error.

2. The method as claimed in claim 1, characterized in that the coil current is measured by potential tapping before and after a resistor connected in series with the coil (14, 16), the potential taps being fed to a differential amplifier (30), and a constant value being added to the output value of the differential amplifier (30) in order always to obtain an offset error signal of a specific polarity.

3. The method as claimed in one of the preceding claims, characterized in that, in the case of an actuator (1) with two coils (14, 16) respectively assigned to a final position, the coil current through that coil (14, 16) which is not assigned to the present final position is measured for determining the offset error.

4. The method as claimed in claim 3, characterized in that, for transferring the actuator (1) into a final position, the coil (14, 16) assigned to this final position is firstly supplied with a capture current and then, after reaching the final position, with a holding current, and in that then

2   AMENDED SHEET   10-31-2001

9.

the determination of the offset error is carried
out on the other coil (14, 16).

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5. A circuit for determining the offset error of a
    measurement that is subject to such an offset error
    of the coil current I of an electromagnetic
    actuator (1) having at least one coil (14, 16),
    with a resistor (R) connected in series into a
    supply line of the coil (14, 16), a differential
    amplifier (30), to which the potential on both
    sides of the resistor (R) is fed, and a control
    circuit (33, 34, 35), which evaluates the output of
    the differential amplifier (30) when the coil (14,
    16) is not carrying any current during the
    operation of the actuator (1), and takes the value
    obtained as the offset error I_o.

6. The circuit as claimed in claim 5, characterized in
    that the output of the differential amplifier (30)
    is fed together with the output of a constant-
    voltage source (32) to an adding element (31), with
    the result that there is always an offset error
    signal of a specific polarity.

7. The circuit as claimed in one of the preceding
    circuit claims, characterized in that, for an
    actuator with two coils, respectively assigned to a
    final position (19, 20), a resistor (R) is
    connected in the supply line to each coil (14, 16),
    a differential amplifier (30) respectively taps the
    voltage dropping across said resistor, and the
    control circuit (33, 34, 35) evaluates both outputs
    of the differential amplifiers (30).

8. The circuit as claimed in claim 7, characterized in
    that the control circuit (33, 34, 35) for supplying
    current to the coils (14, 16) is designed in such a
    way that, for transferring the actuator (1) into a

2   AMENDED SHEET   10-31-2001

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final position (19, 20), the coil (14, 16) assigned to this final position (19, 20) firstly carries a capture current (Fs, Fo) and then, after reaching the final position (19, 20), a holding current

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